

CLAIMS

1. A method of continuously coating a metal strip B with a polymer composition P, said strip having an "external" face Be to be coated and an opposite "internal" face Bi, characterized in that it includes the steps of:

- feeding said strip B continuously over a heated support roller (1") with a non-deformable metal surface,
- applying said polymer composition P to the external face Be of the strip using application means including said support roller (1"), and
- heating said strip B before, during and after application through contact of its internal face Bi with said support roller (1").

2. A method according to claim 1, characterized in that said metal strip B is pre-heated before it is fed over said support roller (1").

3. A method according to either claim 1 or claim 2, characterized in that said coated metal strip B is post-heated after it is fed over said support roller (1").

4. A method according to any one of claims 1 to 3, characterized in that said polymer composition P is applied by rolling said composition between an applicator roller (2") with a deformable surface and said strip B bearing on said support roller (1").

5. A method according to any one of claims 1 to 4, characterized in that said polymer composition is applied in the solid state in the form of a film.

6. A method according to any one of claims 1 to 4, characterized in that said polymer composition is applied in the molten state.

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7. A method according to claim 6, characterized in that said polymer composition is applied in the molten state by direct extrusion onto said strip bearing on said support roller (1").

8. A method according to claim 6, characterized in that the application of said polymer composition in the molten state includes the steps of:

- applying a layer of said composition P to an applicator roller (2") which has a deformable surface, and
- transferring said layer from said applicator roller (2") to said strip bearing on said support roller (1").

9. A method according to any one of claims 1 to 8, characterized in that said polymer composition P is a thermosetting composition and in that, after application, the polymer composition of the coating of the strip B is cured.

10. A method according to any one of claims 1 to 8, characterized in that said polymer composition P is a thermoplastics composition and in that said coated strip B is cooled after application and after the strip B has escaped from contact with said support roller (1").

11. A method according to claim 10, characterized in that cooling by quenching is carried out to obtain a polymer coating layer having an amorphous or partly crystalline structure.

12. A method according to claim 10 or claim 11, wherein the surface of said applicator roller (2") is cooled directly.

13. A method according to any one of claims 1 to 12,

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characterized in that it further includes a step in which a polymer composition P" is applied to the internal face Bi of the strip.

5 14. A method according to claim 13, characterized in that, for the step in which a polymer composition is applied to the internal face Bi of the strip, said strip already coated on its external face Be is fed over a heated metal support roller (1'') which has a non-deformable surface so that the strip is heated by contact of its external face Be with said support roller (1'') before, during and after application of the polymer composition P" to the internal face Bi of the strip.

15 15. A method according to claim 14, characterized in that said support roller (1'') is provided with a non-stick layer (9).

16. A device for implementing the method according to any preceding claim of coating a metal strip B having an "external" face Be to be coated and an opposite "internal" face Bi, said device including:

20 - means for applying a layer of polymer composition P to the external face of the strip, including a support roller (1'') provided with heating means, and

25 - means for feeding the strip continuously and defining a feed path of the strip in said device, characterized in that:

- said support roller (1'') has a non-deformable metal surface, and

30 - said feed means feed the strip over said support roller (1'') with its internal face Bi held in contact with the surface of said roller before, during and after application of said layer.

17. A device according to claim 16, characterized in that it includes additional means for pre-heating the

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strip B to be coated on the feed path of the strip and upstream of said support roller (1").

18. A device according to either claim 16 or claim 17, characterized in that it includes additional means (6, 8) for post-heating the coated strip B on the feed path of the strip and downstream of said support roller (1").

19. A device according to any one of claims 16 to 18, characterized in that said application means include an applicator roller (2") with a deformable surface bearing indirectly on said support roller (1") through the intermediary of said strip B so as to form rolling means in conjunction with said roller.

20. A device according to claim 19, characterized in that said applicator roller (2") is provided with cooling means.

21. A device according to claim 20, characterized in that said cooling means cool the surface of said applicator roller (2") directly.

22. A device according to claim 21, characterized in that said cooling means include a metal skirt J fed in contact with said applicator roller (2") to cool it and means for cooling said metal skirt J.

23. A device according to any one of claims 16 to 22, characterized in that said application means include means for extruding said composition P in the molten state.

24. A device according to any one of claims 16 to 23, characterized in that it includes means for cooling the strip on the feed path of the strip and downstream of said support roller (1").

25. A device according to claim 24, characterized in that the cooling means include a cooling roller (4, 4', 4'') with a metal surface.

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26. A device according to claim 24, characterized in that the cooling means include water spraying and/or water quenching means.

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27. A device according to any preceding claim for coating the external face Be of a metal strip B, characterized in that it further includes means for coating the internal face Bi.

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28. A device according to claim 27, characterized in that the means for coating the internal face Bi are on the feed path of the strip and downstream of said support roller (1'') and include:

- means for applying a layer of polymer composition P'' to the internal face of the strip, including a metal support roller (1''') with a non-deformable surface and provided with heating means, and

- means for feeding the strip over said support roller (1''') with its already coated external face Be held in contact with the surface of said roller before, during and after application of said layer.

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29. A device according to claim 28, characterized in that said support roller (1''') is provided with a non-stick layer (9).

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30. A device according to either claim 28 or claim 29, characterized in that it includes a pair of cooling rollers (4, 4'') downstream of said support roller (1''') and the successive rollers (4', 4'') are disposed so that the coated faces Bi and Be of the strip come alternately into direct contact with the rollers (4, 4'').